FEMA L. Bldg. 171018

FLOOD INSURANCE STUDY

ORIGINAL

COMPLETED
13

VILLAGE OF MAPLE PARK, ILLINOIS

KANE COUNTY

AUGUST 4, 1987

Federal Emergency Management Agency

COMMUNITY NUMBER - 171018

NOT FOR CIRCULATION

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

BEST COPY AVAILABLE

TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1
1.1	Purpose of Study	1
1.2	Authority and Acknowledgments	1
1.3	Coordination	1
2.0	AREA STUDIED	2
2.1	Scope of Study	2
2.2	Community Description	2
2.3	Principal Flood Problems	2
2.4	Flood Protection Measures	2
3.0	ENGINEERING METHODS	2
3.1	Hydrologic Analyses	4
3.2	Hydraulic Analyses	4
4.0	FLOOD PLAIN MANAGEMENT APPLICATIONS	5
4.1	Flood Boundaries	5
4.2	Floodways	5
5.0	INSURANCE APPLICATION	6
6.0	FLOOD INSURANCE RATE MAP	6
7.0	OTHER STUDIES	6
8.0	LOCATION OF DATA	6
9.0	REFERENCES AND BIBLIOGRAPHY	7

BEST COPY AVAILABLE

TABLE OF CONTENTS (Continued)

Page

FIGURE

Figure 1 - Vicinity Map 3

TABLE

Table 1 - Summary of Discharges 4

EXHIBITS

Flood Profiles

Union Ditch No. 2 Panel 01P

Flood Insurance Rate Map

BEST COPY AVAILABLE

FLOOD INSURANCE STUDY

VILLAGE OF MAPLE PARK,
KANE COUNTY,
ILLINOIS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the Village of Maple Park, Kane County, Illinois, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound flood plain management. Minimum flood plain management requirements for participation in the National Flood Insurance Program are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, flood plain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the state (or other jurisdictional agency) will be able to explain them.

This Flood Insurance Study was prepared by compiling existing hydrologic and hydraulic technical and scientific data prepared originally for purposes other than the National Flood Insurance Program. The data were identified as the best available at the time of compilation of this Flood Insurance Study and should depict the general conditions of the flooding sources with relative accuracy. The Federal Emergency Management Agency (FEMA) performed a cursory review and accepted the data as valid for purposes of this Flood Insurance Study and the National Flood Insurance Program. However, if better information is known to exist or has been developed since the date of this report, the information should be immediately forwarded to the Natural and Technological Hazards Division, FEMA, Chicago, Illinois, for consideration for revision of this study.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were obtained from the U.S. Geological Survey publication "Floods in Maple Park Quadrangle, Northeastern Illinois" (Reference 1).

1.3 Coordination

On August 21, 1986, the results of this Flood Insurance Study were reviewed and accepted at a final coordination meeting attended by representatives of the community and FEMA.

BEST COPY AVAILABLE

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Village of Maple Park, Kane County, Illinois. The area of study is shown on the Vicinity Map (Figure 1).

The areas studied by detailed methods were selected based upon the extent and validity of available existing hydrologic and hydraulic data. Flooding caused by overflow of Union Ditch No. 2 within the corporate limits of the Village of Maple Park was studied in detail.

2.2 Community Description

The Village of Maple Park is located in northeastern Illinois in the western portion of Kane County, and is bordered on all sides by the unincorporated areas of Kane County. Maple Park is located approximately 35 miles west of Chicago. The 1980 population of the Village of Maple Park was reported to be 637, a decrease from the 1970 population of 660 (Reference 2).

The climate of the Village of Maple Park is best described as humid continental with warm to hot summers and moderately cold winters. The proximity of Lake Michigan to the study area has a moderating effect on the climate. The average annual temperature in the county is about 50 degrees Fahrenheit (F.). Average monthly temperatures vary from 20 degrees F. in January to 75 degrees F. in July with extremes ranging from -25 degrees F. to 112 degrees F. (Reference 3).

Although little development in the flood plain has occurred in the past, future growth in Maple Park is projected to be to the south, in the direction of Union Ditch No. 2.

2.3 Principal Flood Problems

The principal flooding problems in the Village of Maple Park are caused by the overflow of Union Ditch No. 2 in the southern section of the village.

2.4 Flood Protection Measures

Flood protection measures do not exist within the study area.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for flood plain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the

BEST COPY AVAILABLE

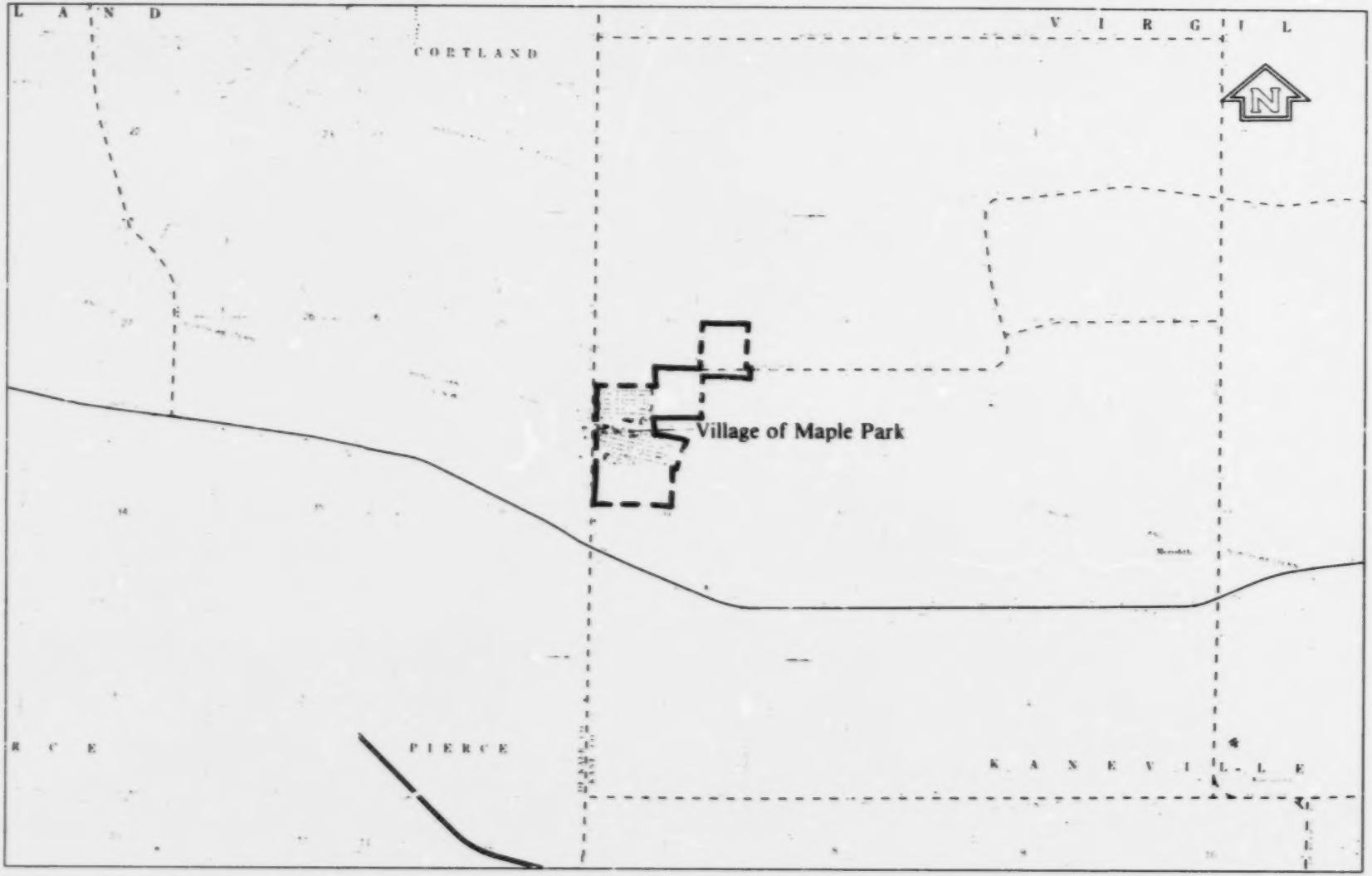


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

VILLAGE OF MAPLE PARK, IL

(KANE CO.)

APPROXIMATE SCALE

4000 0 4000 8000 12,000 FEET

VICINITY MAP

BEST COPY AVAILABLE

same year. The risk of experiencing a rare flood increases when periods greater than one year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (one-percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each riverine flooding source studied in detail affecting the community.

All discharges were calculated by the Illinois State Water Survey, which reviewed available data from past storms.

Peak discharges for the 10-, 50-, 100-, and 500-year floods of each flooding source studied in detail in the community are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
UNION DITCH No. 2					
at County Line Road	2.9	N/A	N/A	356	N/A
about 1,635 feet upstream of County Line Road	2.1	N/A	N/A	287	N/A

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

All data used in the hydraulic analyses for this study were obtained from records of past floods and through engineering judgment.

Flood profiles were drawn showing the computed water-surface elevations for floods of the selected recurrence intervals. In cases where the 50- and 100-year flood elevations are close together, due to limitations of the profile scale, only the 100-year profile has been drawn.

The hydraulic analyses for this study are based only on the effects of unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

BEST COPY AVAILABLE

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD).

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound flood plain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year flood plain boundaries and 100-year floodway to assist communities in developing flood plain management measures.

4.1 Flood Boundaries

To provide a national standard without regional discrimination, the one-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for flood plain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the 100- and 500-year flood plain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps with a scale of 1:24000 and contour intervals of 5 and 10 feet (Reference 1).

The general procedure used in defining flood boundaries was to construct flood profiles from elevations of flood marks identified in the field and from data available from other agencies. The extent of flooding delineated on the topographic map was derived from the profiles by interpolation between contours and by plotting overflow limits identified during field investigations and surveys.

The 100- and 500-year flood plain boundaries are indicated on the Flood Insurance Rate Map. On this map, the 100-year flood plain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, AE, AH, AO, A99, V, and VE) and the 500-year flood plain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100-and 500-year flood plain boundaries are close together, only the 100-year flood plain boundary has been shown. Small areas within the flood plain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

4.2 Floodways

The floodway is the channel of a stream plus any adjacent flood plain areas that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights.

A floodway was not determined for this report since floodway calculations were not presented in the source reports used for this study (Reference 1).

BEST COPY AVAILABLE

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year flood plains that are determined in the Flood Insurance Study by detailed methods. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year flood plain, areas within the 500-year flood plain, areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and flood plain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year flood plains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For flood plain management applications, the map shows by tints, screens, and symbols the 100- and 500-year flood plains, the floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

7.0 OTHER STUDIES

A Flood Insurance Study has been published for the Unincorporated Areas of Kane County (Reference 4) and is in agreement with this study.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, FEMA, 300 South Wacker Drive, Chicago, Illinois 60606.

BEST COPY AVAILABLE

9.0 REFERENCES AND BIBLIOGRAPHY

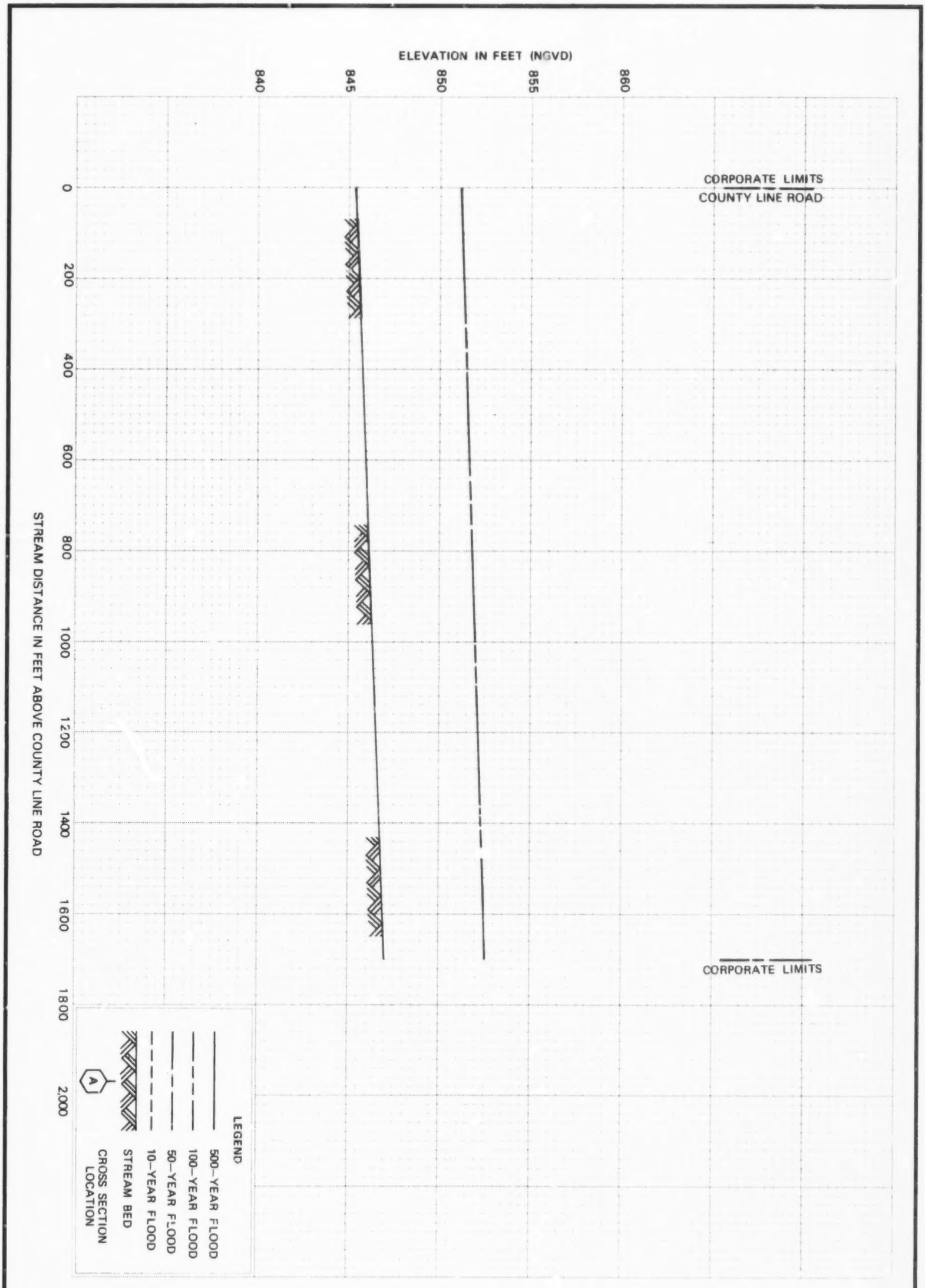
1. U.S. Geological Survey, Hydrologic Investigation Atlas HA-458, Floods in Maple Park Quadrangle, Northeastern Illinois, Roman T. Mycyk and Gerald L. Walter.

2. U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Number of Inhabitants, Illinois, Washington, D.C., February 1982.

3. ————, National Oceanic and Atmospheric Administration, National Climatic Center, Climatological Data for Illinois, Asheville, North Carolina, 1975.

4. Federal Emergency Management Agency, Flood Insurance Study, Kane County, Unincorporated Areas, Illinois, October 1982.

BEST COPY AVAILABLE



01P	FEDERAL EMERGENCY MANAGEMENT AGENCY **VILLAGE OF MAPLE PARK, IL** (KANE CO.)	**FLOOD PROFILES** **UNION DITCH NO. 2**

BEST COPY AVAILABLE